Forest Insect Conditions on the

Cache National Forest

This is an evaluation of the mountain pine beetle situation on the Cache National Forest in 1967. Material for this report was compiled from old control records, from previous evaluation reports, from aerial survey data, and from special on-the-ground evaluation surveys.

The only serious insect problem on the Forest in 1967 was the mountain pine beetle in lodgepole pine. Other problems were encountered during aerial and ground surveys, such as the Douglas-fir beetle, a leaf spot on aspen, and the forest tent caterpillar on bigtooth maple and chokecherry, but they were incidental and not considered an immediate threat to their respective host trees and plants. These problem areas along with the various mountain pine beetle infestations are shown on a copy of the aerial survey map mailed to the Forest earlier.

A more complete discussion of the mountain pine beetle problem follows:

Mountain pine beetle, Dendroctonus ponderosae Hopk.

The Cache National Forest has a relatively long and sporadic history of lodgepole pine killed by the mountain pine beetle. Early but incomplete records show that significant tree killing by this beetle was observed on the divide between Emigration Canyon and Copenhagen Basin as early as 1926. The first control project was in 1929 when more than 13,000 lodgepoles were burned standing in portions of Trail Creek, North Canyon, and Pearl Creek in the northern end of the Forest. With the exception of years 1933 and 1940-1942, some degree of control of individual infestations was undertaken every year until 1947, when presumably, endemic conditions finally prevailed. The infestation remained at a relatively low level for more than a decade and although some 125 trees were treated in 1952, a resurgence of damaging beetle populations did not occur until 1959, requiring control of some 1,600 infested trees in 1962 and more than 20,000 trees in 1964. This latter control effort was the largest single control project in the history of the Forest and no control has been undertaken since then. Ironically, a portion of this final control effort was in Trail Hollow and Pearl Creek, the site of the first control project in 1929. By 1965, beetle populations were generally widespread throughout the lodgepole type but at a relatively low level. A slight increase in tree killing occurred in the fall of 1965 and again in 1966; a significant reduction in new attacks occurred in 1967, and it is expected that this general decline will continue through 1968.

According to 1967 aerial survey data, areas containing the heaviest concentration of beetle activity, in addition to several scattered infestations, are in the Idaho portion of the Forest. The major beetle infestations are scattered throughout Trail Hollow, Pearl Creek,

the head of Eight Mile Creek, Emigration Canyon, Copenhagen Canyon, Dry Fork of Liberty Creek, Dry Canyon, and the uppermost reaches of Fish Haven Creek. In Utah the infestation centers are more widely distributed, but concentrated tree killing has occurred in the small drainages west of Meadowville, and in most of the upper reaches of Big and Randolph Creeks west of the town of Randolph. This is easily the heaviest single concentration of beetle infested lodgepole on the Forest today.

Biological evaluations were made in some of the largest infestations during early August while the beetle was in flight and later in early November when all beetle activity had ceased. These late flights, incidentally, were the result of unseasonable cool temperatures during late spring and early summer. Normally emergence starts the first week of July and reaches a peak during the last week of July. In 1967, beetle flights were, generally, two weeks behind.

Following is a summary of the quantitative data taken during the early November evaluation survey:

Area	Attack Ratio 1966	Attack Ratio 1967	Average Fall Brood Density/Sq.Ft.	Trend
Head of 8-Mile Cr.	2	1	109	Decreasing
Upper Trail Hollow	10	0*		Decreasing
New Canyon	2	1	141	Decreasing
Old Canyon	5	0*		Decreasing

*No new attacks found; consequently, no brood counts were taken.

Favorable attack ratios and generally low brood numbers indicate that fewer trees were attacked in 1967 than were killed in 1966 and suggest a continued downward trend for 1968. In most of the areas visited, factors other than those shown in the table are also indicative of declining conditions. One fairly obvious factor is simply the absence of newly attacked trees. A second phenomenon was the extensive Ips populations, especially in the large infestation at the head of New Canyon. When Ips beetles are numerous, they are effective competitors; and when found associated with mountain pine beetle populations in the lower bole, they will almost entirely preclude mountain pine emergence. This successful competition from a so-called "secondary" insect may possibly indicate a general weakening of the physiological state of the mountain pine beetle. Finally, a high incidence of pitchouts were in evidence in many areas as were increased parasite and predator ratios which, alone or together, are signs of a receding trend.

Tree killing by the mountain pine beetle will continue through 1968 but at a much reduced rate. Some infestations will emerge in previous beetle-free stands, a few existing infestations will increase in intensity, but generally most of the existing outbreaks, particularly the larger ones, will show a marked decline. Under these conditions, no control will be needed in 1968.

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